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ABSTRACT

The EUROTECNET program was implemented to develop and improve vocational training policies and systems to meet the challenges of change in the economic and social situation through the development of innovative responses and actions. Each Member State of the European Community was asked to identify one issue of strategic and critical importance to the vocational training system that would benefit from a focused examination and debate at a national and European level. As a result, a series of conferences was launched in all 12 Member States. Each dealt with a different theme of critical importance for vocational training systems that was likely to benefit from innovative solutions. The discussions focused on the following topics: the learning organization and reinforcement of quality assurance; role of small and medium-sized enterprises (SMEs); identification of individual competencies; a continuum of lifelong learning; involvement of social partners in the strategy for vocational education; and radical change in companies' in-house training. The following conclusions were reached: training was a part of a comprehensive approach to change; the greatest challenge was unemployment; change was posing new challenges for companies; innovation was needed; a new focus on the individual was crucial; employees should have core competencies; SMEs must invest in training; and the concept of partnership between industry and the vocational education and training systems must be applied more broadly. The biggest challenge was the acquisition of the new competencies for general workers. (YLB)

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Development of vocational training systems

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Introduction

The implementation of the EUROTECNET programme took place during a period of intense change in the economic and social situation in terms of employment, industrial restructuring, and a search for new solutions to European growth and competitiveness problems. The EUROTECNET programme aimed to develop and improve vocational training policies and systems to meet the challenges of such change through the development of innovative responses and actions. The changes taking place were so vast and far reaching that it was decided to ask each Member State to identify one issue of strategic and critical importance to the vocational training system which would benefit from a focused examination and debate at a national and European level. The thinking was that each country's critical issue would likely be a problem other Member States would also have to resolve.

As a result of this exercise a series of conferences was launched in all Member States, starting at the end of 1992 and ending in 1993.

These themes, which were each chosen on the basis of the issues of vital interest for the Member State concerned, were different for every Member State. However, all countries were faced with the same questions, to varying degrees and with different national systems.

Each dealt with a theme of critical importance for vocational training systems, which was likely to benefit from innovative solutions.

The debate enabled the links between similar aspects of the vocational training systems to be identified, as well as the differences between them. All relevant organisations were involved: vocational training bodies; national experts; national, regional and local authorities; and the social partners. This produced a process of reflection on the main strategic issues concerning the European education and vocational training systems.

This document, is of necessity a synthesis of that debate since it is impossible to reproduce the proceedings of the conferences in full, as that would require a document of over 2500 pages! Nevertheless, readers who are interested can consult the full texts from each strategic conference in the archives of DG XXII - Education, Training and Youth of the European Commission.

In this period of intensive work, with so many new ideas under consideration, it is hoped that this document may be of use for the implementation of the new LEONARDO programme and the new programme of Community Initiatives, in particular Adapt and Employment.

1. A brief description of the 12 Conferences

1. Oberhof(D): New Cooperation Strategies for SMEs

Taking place in Oberhof in the new Federal State of Thüringen in October 1992, the German Conference was concerned with Concepts, Methods and Strategies for the Qualifications necessary to strengthen SMEs. A wide range of experts from across the Community presented papers at the conference but the participants were particularly pleased to be able to hear Prof. Dr. Wolfgang Skell elaborate on his work in the area of Activity Regulated Learning Theory (work related learning and learning related work). Another point to emerge from the conference was the absolute need for Training Institutes to relate more effectively with SMEs leading to the development of Strategic Marketing of Training with the Trainer acting as a Consultant.

2. Rome (I): New Perspectives of Innovation in the Field of Vocational Training

The Italian Strategic Conference took place in Rome early November 1992, on the theme *Experiences and Perspectives of Innovation in the Field of Vocational Training*. The conference was attended by 120 people representing a wide spectrum of Italian and European interest groups who participated in the discussion on the major challenges facing vocational training systems in Europe today. Survival and competitiveness will be possible only for those organisations which are both efficient in terms of fully utilising their own resources and effective in responding to the demands of the markets and social systems. In this respect, if it is true that technologies represent a productive factor of increasing strategic relevance, the efficacy of their applications depends on the contextual implementation of learning processes, capable of gathering together not only technical but also behavioural knowledge and competencies.

3. Durham (UK): Economy in Production

The UK Strategic Conference also took place early November 1992 at Durham. The theme was based on the recognition that new Training Strategies must be developed to bring about Economy in Production. One of the most telling points to emerge from the conference was the continuing great need for Training Organisations to give professional leadership and support to enterprises while adopting a more focused client/customer orientation. In this way standards of competence can be continuously raised leading to better quality and higher productivity for the enterprise and more relevant qualifications for the individual.

4. Lisbon (P): New Training Engineering Strategies

Attended by 240 people, the Portuguese Strategic Conference which took place in Lisbon on November 16-17 1992 focused on the theme *The Training Engineering related to New Technologies*. In view of the current deficit in competencies, the need for

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new training strategies was expressed as the full development of human resources qualifications is becoming a key factor for the competitiveness of the enterprise. In this context, the *Learning Organisation* model was presented, as well as a strategy to develop a successful training plan within the enterprise. Other themes developed concerned multimedia training methods, marketing of training and training consultancy, training evaluation, and transnational cooperation in training. An interesting discussion took place between the Portuguese social partners on issues related to the financing of continuing training and the training policies.

5. Luxembourg (L): Introducing Multimedia as a Pedagogical Oriented Technology

The Luxembourg National Conference on *The MultiMedia Approach in Vocational Training* took place in December 1992 and was attended by 120 people. The same theme had been previously addressed in a EUROTECNET workshop in 1991 in Luxembourg, which contributed to the reinforcement of the level of national interest and expertise for this very relevant matter.

The two days discussion focused mainly on the pedagogical and methodological aspect of multimedia than on the technological ones. The importance of the type of interactivity between the machine and the user in the development of the learning processes was stressed, and in particular the need for training professionals to move from technology oriented learning toward pedagogical oriented technologies. It was also stressed that the evaluation of multimedia must be oriented on the whole learning process rather than on specific training packages. This includes the aim, the goals, the working and the learning environments.

6. Ostend (B): The Trainer as a Consultant

Taking place in Ostend also in December 1992, the Belgian(Flanders) Strategic Conference was aimed at discussing the new role of the Trainer. This new role was put forward in a context where the process of training is considered to be much more a support for the activity of self-learning and not simply as the teaching of knowledge. Practical examples of work and learning activities in the enterprise were discussed. The difficulties in efficiently integrating both activities were stressed and the need for a new type of work organisation where the Trainer would act as Consultant was underlined.

Case studies which introduced a new form of relationship between the Training Institute and the SMEs were also presented. A discussion between the social partners on the issues raised during the workshops brought the conference to an end.

7. Copenhagen (DK): How do the Training Centres Cope with the New Trends

The Danish Strategic Conference took place in February 1993 as a first joint FORCE/EUROTECNET conference on the theme "Continuing vocational training and innovation in vocational education in Denmark and in Europe - how do the Training Centres cope with the new trends". The event took place during the Danish presidency

of the Council of the European Community and brought together a large number of participants related to the two programmes from all the Member States.

The conference stressed the need for a better link among the different social and economic actors. A rationalisation of the Community R&D actions and programmes was called for, in particular with a view to improve the qualifications of workers and enhance enterprises' effectiveness and to develop, at the same time, a better social dialogue. There were speakers who defended the notion of "just in time training" to fight against the current problem of increasing unemployment in the more developed countries. If a main conclusion could be stated, it is that the need for innovation goes on even more as we search for new solutions to challenges of the '90s.

8. Dublin (IRL): The Need for New Types of Training Partnerships

The Irish EUROTECNET Strategic Conference entitled "Managing Innovation in Training and Education" took place in Dublin in February 1993. Eighty participants including representatives from the public and private sectors, Social Partners, and Educational and Training Policy Makers attended.

The need for Vocational Education and Training Systems to be more flexible and better focused on the demands of Industry was underlined by many of the speakers and participants. This would facilitate the new career paths and new qualifications required by industry due to technological change. The emphasis placed in a recent Irish report, on the need for a more technical and socially oriented educational curriculum, was welcomed.

The speakers also stressed the need for new types of social and training partnerships between policy makers, trainers, employers and trade unions. These partnership structures are being reinforced by the Irish Government's "Programme for Partnership", which places considerable emphasis on measures creating new enterprises and employment through enhanced training systems in both the public and private sectors.

9. Paris (F): Qualification Needs Analysis, Flexible Training Responses, Transnational Partnerships

The French Strategic Conference, which took place in February 1993, was attended by EUROTECNET projects leaders, training responsible within the French Civil Service, social partners, and representatives of FORCE and EUROFORM projects. One of the themes which gave rise to a very interesting discussion, concerned the role of social partners in the validation and certification of qualifications, particularly social competencies. Another central question which was raised in the course of the conference was - how does one begin to change national training policies in order to meet competency needs arising in the enterprises ? An important issue raised is the difficulty to implement flexible training systems that conform to the actual regulations which are structured on a traditional training delivery system, on the basis of "stage". Finally, the setting up of transnational partnerships was seen as a good mechanism for the stimulation of innovative practices in training.

10. 's Hertogenbosch (NL): Linkages between Industry, Education and Training

The Dutch strategic conference also took place in February 1993 in 's-Hertogenbosch. The theme of the conference "Linkages between Industry, Education and Training" was chosen to examine the changes currently being introduced in the Netherlands to respond to the need for a greater quantity and flexibility in the supply of training.
The conference concluded that the Vocational, Educational and Training system should be much faster in detecting and describing the new professions which are appearing. It was also felt that the curriculum in VET should focus on broad skills such as "learning to learn", flexibility, social skills, that is those skills referred to as "core/key qualifications". Finally, in the conference discussion on the comparison of professions across Europe, it was strongly emphasised that rigid bureaucratic structures should be avoided. Likewise, in order to maintain credibility with the world of industry, the descriptions of professions should be transparent and expressed in practical terms.

11. Athens (GR): The Trainer as a Learning and Development Agent in a Changing Work Environment

Taking place in Athens in March 1993, the Greek National Strategic Conference was the first major conference on this topic in Greece. Consequently, a great deal of interest was generated by the conference which attracted over 250 participants.

It is widely accepted that today's organisations should become much more flexible if they are to respond to the external changes in the environment. This means that the role of the trainer has to change substantially. Several aspects of the new role of the trainer were highlighted by the speakers at the conference. The traditional view of the trainer as an expert provider must change towards that of a facilitating consultant. This new function means that trainers will play a key part in the analysis of training needs involving all employees in the enterprise. The utilisation of learning methods which enable the learners/workers to learn for themselves must also be introduced. Finally, it is important for trainers to carry out a critical and open evaluation of training which meets business needs criteria and the self-improvement needs of all employees.

12. Madrid (E): New policies for Curricular development and New Professional Qualifications with regard to Technological Changes

The Spanish strategic conference took place in April 1993 in Madrid on a theme which originates from the recent agreement establishing a new Vocational Training Programme in Spain. This agreement pursuits 4 main objectives: to renew initial and continuing vocational training provisions; to make the training market more transparent; to find a system of correspondence of certificates and of on-the-job training; and to design systems of distance education with recognised diplomas. The sensibilisation of trainers to technology through Interactive Video, self-learning through the use of appropriate multimedia tools, and the analysis of new emerging professional profiles with specific qualification needs were some of the themes presented by Spanish projects and other European Experts in the field.

The conference highlighted the need to design new and flexible instruments for the detection of training needs which would take into account core competencies of the workforce as well as the organisational development of the enterprise.

2. The heart of the debate

The Nobel Physics prize-winner Leon LEDERMAN has calculated that the events which would have occurred in 50 years during the last century are now occurring in the space of 10 years, with all the risks that this enormous acceleration in the pace of change implies.

How should we deal with the rapid pace of change in work, society and ethics that we are now facing in everyday life ?

This question particularly concerns the changes which should be made to the systems for imparting qualifications, with a view to meeting the requirements of the European single market, and the new globalisation of industry.

A process of qualification which is basically the reflection of an aptitude for competencies, consists of a complex blend of competencies, knowledge and motivation; unlike a product or service, it is difficult to imitate. For example, Japanese production techniques, which have been studied in depth by Westerners, are rarely as viable in the West as in the Orient. The West has often signed agreements with its Oriental competitors, and adjusted its policy to take account of them.

However, it is possible for European firms to maintain an advantage over competitors by increasing investment in qualifications and trying to develop an environment of dynamic learning in the way they are structured. This flexible and long-lasting approach offers a solution to the problems of workers and the firm, including working methods and inter-personal relations, and makes the firm more competitive and adaptable in the market.

The learning organisation

In Europe, lean production, production islands, and the learning organisation are becoming an operational reality, giving expression to a requirement for restructuring the way work is organised, which involves the management as well as the workforce.

Vocational training is becoming an integral part of the structure of the firm, and encourages the dissemination of an ever higher level of knowledge, qualifications and competencies throughout the organisation of work and production.

The modern firm is characterised by erosion of the traditional division of labour, and by greater decentralisation of decision-making powers. One of the objectives of such decentralisation is to reinforce quality assurance, by transferring more responsibility to the various levels of the workforce. The modern worker is becoming a colleague capable of planning, organising and carrying out his/her work independently, in a multi-disciplinary team, in a changing working environment. Learning is increasingly carried out in the workplace.

In view of the importance of this new concept, devised as part of the EUROTECNET programme, the theme of the learning organisation formed one of the key points of the discussion in the strategic conferences in all Member States.

A learning organisation forms a working environment favourable to the creation of a qualified workforce, which is essential in the context of the new economy. Individuals working within such an organisation are typified by a willingness to try out new approaches, the ability to learn from their own experience (and areas of excellence of other people), and to pass on their knowledge quickly to the rest of the organisation.

The adoption of systems and processes aimed at enabling these activities and incorporating them into the structure of the organisation enables firms to manage the training of their personnel in an efficient way.

Conventional human resources planning depends on decisions taken by the firm about investment in technology and its recruitment policy, as well as the firm's immediate requirements for qualifications. The solution offered by the learning organisation is to set up a system which has a pool of competencies and qualifications among its workforce, giving the firm increased flexibility.

The learning organisation ensures that this "pool of qualifications" is created, by allowing all individuals in the organisation to learn, whatever may be their level in its hierarchy. In this context, learning means the acquisition and application of new knowledge and competencies, and the development and adaptation of new roles.

SMEs

SMEs, according to the classification used by the European Commission, have between 1 and 499 employees. Therefore, 99.9 % of European businesses are SMEs, and only one in every thousand is a large firm. Of the people working in the market economy, 71.9 % are employed by SMEs, and 28.1 % work for large firms. The special situation of SMEs means that they are exposed to problems in adapting qualifications to changing requirements, and setting up vocational training.

Moreover, the target groups for training providers are often the senior executives of large firms. Assistance in improving access and making a better match between supply and demand for training is offered by regional or industry-specific cooperation in vocational training. The concept of learning organisation should apply to SMEs, to enable them to develop new approaches to training and the organisation of work. This aspect was dealt with in the strategic conference in Germany on learning and the working environment in SMEs, and was also addressed during the conferences in the United Kingdom, Belgium and Italy.

The United Kingdom and Italy are also focusing their attention on questions concerning strategies for the development of SMEs, productivity, competitiveness and prospects for innovation in training concerning transferable competencies and methodologies for transfer of training to SMEs.

The stepping-up of cooperation between SMEs and training institutes was the subject of a EUROTECNET transnational project between Denmark, Belgium, Germany, Ireland and Greece.

The introduction of the learning organisation model enables SMEs to re-structure, thus developing their capacity for learning, and produces innovative cooperation with training centres, which then become service centres.

Consortia involving regional and local authorities, social partners, training centres and SMEs represent a comprehensive and flexible approach to the needs of SMEs, and offer the possibility of synergy for training, directly applicable in the real-life situations in various Member States.

Individual competencies

The new economic and social system based on knowledge and information has profound implications.

The shortening of product and service life-cycles requires increased flexibility of production processes, and there is a growing shift from mass production to customisation and adapting to the customer's requirements. Products and services of high quality are wanted, which means moving towards production of goods which are standardised with regard to content, but marketed according to demand from a particular market segment.

Production is transnational in character, and benefits from each country where the organisation is established. In this kind of economy, new competencies are required. The emphasis is on the requirements of the individual as the end user of goods and services, but also as an intelligent and motivated worker.

Indeed, unlike the inflexibility of Taylorist models of organisation, the transformation of the structure of the business requires individuals to participate actively within new forms of work organisation.

This trend affects the identification of training requirements and technical qualifications, and on "key competencies", or "transferable competencies". These include: ability to communicate, identify and solve problems, perform self-evaluation and self-training, the capacity to take initiatives and decisions, be flexible, work in a team, transfer knowledge to different situations, and be creative.

France, Spain, Italy and Luxembourg concentrated their reflection on - among other topics - new competencies and qualifications, and the flexible responses which training can offer. This theme recurred in the discussion at other conferences, and is now accepted as one of the "key" points in the new organisation of work.
As part of the work of a group of national experts, the EUROTECNET programme produced a report on "key competencies" approved by the single EUROTECNET/FORCE Consultative Committee.

Continuum - Lifelong learning

The current period of profound socio-economic change implies changes in the competencies of every worker throughout their lifetime.

In dealing with future prospects in its White Paper on growth, competitiveness and employment, the Commission mentioned the "great wager" of education and training which continue to develop throughout the lifetime of European citizens. In companies, but also in the public sector, it is essential that workers should be capable of continuing, long-term learning. This will make them capable of seizing the opportunities for learning which arise at work and in life in general. This continuing learning uses the various forms of open and distance learning, and multimedia, which is increasingly widely available and accessible via new technologies.

The basic competencies for individuals to be able to join the world of work include basic education in language, science and culture, vocational and transferable skills and the capacity to learn throughout a lifetime.

The clear-cut separation between education and vocational training is becoming blurred: education and training are becoming ongoing activities.

Individuals are undergoing a personal development process, in which their education and training enable them to become aware of their unique potential and realise that potential in their career, which thus becomes a process of self-development and a socially-useful mission.

This aspect was dealt with in particular with different approaches, in the Dutch conference, and in the conference on the links between industry, education and training by Denmark and Ireland.

Greece, Belgium and Portugal explored in greater detail the analysis of the transformation of the role of trainers, who are becoming agents for training and development in the new organisation of work, as consultants and instructors.

Learning through multimedia, and its role in vocational training, was discussed in Luxembourg, Portugal and Belgium.

Social dialogue

The agreement signed recently between the European Employers' Confederation and the European Trade Union Confederation is based on Article 15 of the Social Charter, which stipulates that every worker in the European Community must have access to vocational training throughout his/her life.
The social partners decided in Denmark to include a system for analysing qualifications in a new collective bargaining agreement. This system is known as SUM (Development of Human Resources).

In Belgium, the conference enabled the social partners to express their recommendations about firms' training strategy. In the view of the employers, this must form part of the strategic management of the business in general, while the trade unions consider that this strategy should be based on a balance between decentralisation of training and the centralised support of the management of human resources.

The conference in Spain presented a EUROTECNET project (E31) which deals with training for trade union representatives, and the analysis of new career profiles resulting from the introduction of new technologies in the workplace.

The social partners (the local trade union, the ETUC and the Spanish employers' confederation) are involved in this project.

The strategic conference in France emphasised innovation in recognition of qualifications by employers, and particularly the role of social partners.

The social partners are involved in the field of production and validation of vocational qualifications, and in particular, in the process of setting up vocational qualification certificates (VQCs).

In Ireland, the Conference dealt with - among other things - training agreements recently introduced by mutual consent between trade unions and employers, as part of the PESP (Programme of Economic and Social Progress). These agreements establish the main points of union policy about company in-house training.

In Italy, Confindustria (which represents businesses in the private sector) and Intersind (which represents businesses in the public sector) indicated what they consider to be the blueprint for new types of training: collaboration and use of a common training language by all actors in training and by institutions. The unions (CISL and UIL) stressed the critical points such as the inadequacy of the continuing training system and the need to stimulate training processes within firms. The synergy between firms and unions needs to be strengthened in order to guarantee the professionalism of workers by increasing their competencies beyond their immediate job.

The reflection in strategic conferences emphasised the importance of involving the social partners in projects and the strategy for vocational training.

It is interesting to note that there is still a significant growth in new practices in continuing training involving social partners, which led recently to the setting-up of the support mechanism for the social dialogue in continuing training.

The Council Recommendation of 1 June 1993, which provided for Commission support for the social dialogue in the field of continuing training, has resulted in practice in gradual construction of joint experiments on priority themes for the social partners.
These themes, illustrated by case studies, range from training in SMEs to changes in the organisation of work, from the validation and recognition of qualifications to new responses to individual requirements.

The support mechanism for the social dialogue, guided by organisations representing the social partners at Community level, is increasingly enabling social partners to play their crucial role in the development of continuing training in all the countries of the European Union.

Radical change in companies' in-house training

For a long time, vocational training was characterised by the fact that it consisted of courses and seminars organised outside the workplace. Training took place in a place designed for this purpose within the company, or in training centres outside the company. The workplace occupied a secondary role when it came to training. As a result, one question was bound to arise sooner or later: "How are the knowledge and competencies acquired during training to be put into practice, and how should the courses be adapted to the needs of the business ? The separation of work and training has been heavily criticised in recent years, and increasing attention has been paid to initial and continuing training in the workplace. There are a number of reasons for this change from workplace to place of learning, or "work-oriented learning".

- **Modern technologies** are mainly characterised by the fact that they are entirely developed in the firms where they are used and where, as a result, their possibilities are fully exploited. The integration of work and training are indispensable to this development and exploitation. Qualified employees who use these technologies are compelled to adapt continually to them, or learn many new applications on the job. For them, the workplace is a place of learning.

- **Key qualifications**, which are vital to modern production processes, can only be acquired to a very limited extent through simulation. There is an increasing need for "real situations" in the company's training centre.

- Continuing vocational training in its conventional form, i.e. outside the workplace, involves **high costs** for companies. This is mainly due to the fact that employees' salaries continue to be paid during training, while the majority of training sessions take place during working hours.

- **The trend towards shorter working hours** means that it is increasingly difficult to grant long periods of leave to employees to enable them to attend training courses. The expansion of continuing training gives rise to problems of lost working time and increased workload for the other employees.

This brief description of the changing requirements and conditions for success of continuing training measures taken by firms at the present time clearly show that the adoption of selective measures, often of very short duration, is inadequate if it is intended to respond to current training needs. The traditional system of courses and seminars will continue, but they will be aimed more at offering basic qualifications ("instruction courses"), while the real task of continuing training, so vital for the business, will be carried out by means of staff development and organisational development projects.
These aspects were emphasised in the conferences in Belgium, Denmark, Greece and Germany.

Work-oriented learning does not only occur in the workplace, but also happens in workshops or at the premises of external training organisations. Work-oriented learning inextricably depends on learning-oriented work, so the workplace must be a place which encourages training.

Learning-oriented work places the emphasis on a workplace which encourages employees to learn, and the management of this form of work is systematically linked to an increase in qualifications. **Learning occurs in the workplace within the firm**. Work-oriented learning emphasises the transfer of new knowledge to actions and behaviour, and on the orientation of the content of training to the necessary actions. The relationship which exists between these different approaches lies in the connection between practical training and vocational training. This concept creates a direct link with the role played by the places where the continuing training takes place.

The relationship between work-oriented learning and learning-oriented work implies not only requirements for changing the work and the technologies, as is the case, for example, with the incorporation of pedagogical and didactic aspects of the organisation of work; it also offers possibilities and constitutes a platform for creating new methods of raising qualifications using conventional training techniques.

3. Conclusions

Training: Part of a Comprehensive Approach to Change

Education and training are certainly crucial factors in the effort to improve competitiveness and reduce unemployment and in the transition to revolutionised production and management systems. However, quality basic education and vocational training alone will not be able to safeguard or contribute substantially to the competitiveness of Europe's manufacturing industries. Without taking an integrated approach to enhancing competitiveness, encompassing technological, organisational and personnel development, and without generating the motivation within the workforce to achieve a virtual cultural revolution and accept a change in mentality concerning work, technological progress, innovation and industrial relations, Europe will not make significant gains in productivity, competitiveness and employment generation.

To achieve these changes, both government and industry will have to play their part in creating a desire to learn among the workforce.

The one area where all of Europe retains a significant traditional advantage is in access to knowledge and learning. The extent of our future success will be measured by the degree to which we are able to tap the resources of a knowledge-based society. In this respect, a very clear message is emerging from employers concerning the needs of the future workforce. Industry, both manufacturing and services, is demanding people with a new 'intellectual profile'.

Unemployment

Clearly the greatest challenge facing the European Union up to the end of the millennium is that of unemployment. We are all aware of the phenomena of the 1980s where with massive rates of economic growth, unemployment remained consistently high. Indeed, unemployment across the Community has increased by more than 50 % in the five years up to 1993.

There is currently little evidence of skills shortages across Europe i.e. unfilled jobs due to a mismatch of skills. It must be said however, that there appears to be a constant demand for the traditional plumber, carpenter painter etc. in particular in the major cities across Europe. Perhaps the existing instruments for identifying skills shortages do not adequately cover their "more open" area of the labour market. But there is no doubt concerning a general competence deficiency brought about as a result of market changes, technological advance and the new concepts now being applied such as Lean Production, Total Quality Management and Business Re-Engineering. Similarly, the highest unemployment rates and the persistence of high levels of long term unemployment are almost exclusively held by those with the lowest levels of education and qualification.

Just as technology forces a totally different structure within the company so with unemployment it might be time to realise that our whole conception of work and society also needs revision.

Change

Industrial change presents phenomena and paradoxes, particularly in Europe. At the socio-economic level there is the paradox of higher work productivity leading to jobs losses, at the competitive level the rate of diffusion and transfer of technical innovation remains too slow. And at the macro-economic level massive economic growth delivers minuscule employment growth.

This means that the changes in market and economic forces are posing new challenges for companies.

The change from mass-markets to customer-oriented markets is characterised by rapidly changing demands, more product variety and changing cost-structures.

Data processing technologies and their applications in administration and production are providing new options and opening up new challenges for these new markets.

The change from mass-to customer-oriented market structures presents new realities as the quality of the product becomes a key competitive factor.

The motivation and attitudes of the working population in Europe are changing to post-industrial values.

The development of a Single Market in Europe, alongside the changes in Eastern Europe and increasing competition from Japan and South-East-Asia, substantially change the market conditions for European enterprises.

The changing world of market developments, technological progress and socio-political environments is the most powerful reason to reorganise firms using Computer Integrated Manufacturing in a way which maximises the role of qualified workers. It is how new technologies are used which will determine their effectiveness in meeting the challenges of changing markets.

In adapting to changing markets and economic demands, the "learning ability" of enterprises becomes the most important factor in re-organising structures and processes within the enterprise, where flexibility and quality are the benchmarks.

The Need for Innovation

Radical changes therefore are needed if Europe's human resource potential is to match the demands of new markets and to remain competitive in those markets. Quality in performance and product is the key to success and just as this requires far-reaching changes in the way in which work is carried out and the companies are organised, so also will it affect the very nature of training and the process of learning within an organisation.

The vocational training systems must respond to these new needs in a holistic and integrated way. Workers' abilities and competencies must be raised in virtually every sphere - in what

are termed the new key/core competencies related to knowledge and cognitive skills, social skills, general and work related personality characteristics together with a high level of technological ability.

At the same time, there is a need for a paradigmatic change in how work is organised and accordingly in how workers are managed. In today's business environment, the Tayloristic approach to work organisation is economically inefficient. Within manufacturing industry long cycle assembly work gives significant increases in productivity. It also fosters higher levels of learning and worker competence.

John Dewey, the educational philosopher defined learning as the continual process of discovering insights, investing new possibilities for action, producing the actions, and observing the consequences, leading to new insights. When the learning process is dysfunctional, the consequences may be far-reaching:

> *"Learning disabilities are tragic in children, but they are fatal in organisations. Because of them, few enterprises live even half as long as a person - most die before they reach the age of forty".*

Most enterprises and organisations are not structured to foster the learning process. It is usually the job of top management to maintain a broad overview of the enterprise and to steer it toward economic success. The top-down model of the Great Figurehead or Thinker, who translates insights into organisational policy and action, is no longer appropriate in the complexity of modern organisations and the markets in which they operate. The world is simply too complex to figure it all out from the top, and too rapidly changing to abide with the slow bureaucratic processes that come with top-down decision making in complex organisations. The breakdown of the authoritarian structure is universal, not only in business, but also in the world of public affairs, as can be seen only too well from the demise of the old Eastern bloc countries and the emergence of new democracies (The Italian conference covered the issues dealt with here).

A New Focus on the Individual

(This issue was paid particular attention at the conferences in Denmark and France.)

The philosophy of European training programmes and networks should be one of mutual learning with a concentration on the needs of the individual within the socio-economic context. We all know that Vocational Training does not create jobs but the view must be promoted that the modern obligation of the Vocational Training system is to give the individual a high level of adaptability, transferability of competence and to ensure continued employability.

This is why much innovation is now aimed at the individual learner and at what new forms of organisation will mean for that person (cf. Key/Core Competencies, Self-Learning Competency, Learning Organisation, etc.).

Key / Core Competencies

The n[illegible] for new qualifications

In the late 80's, the development of high level technological skills was identified as the key to economic progress and it was realised that technological innovation on its own would not equip Europe to reach its socio-economic goals. Questions continue to be asked concerning Europe's competitive and therefore productivity performance in the global market and the necessary development of human resources at a European level which needs to take place.

New technology, along with the globalisation of markets has made an enormous impact on the qualification requirements of the labour force.

The "qualification culture" in the old industries locked them into a world of fixed narrow specific skills, which were to be passed on from generation to generation. This created a climate which resisted change and as a consequence resistance to the introduction of new methods of production and new technologies.

With the introduction of new technologies, skills vanish, change and/or develop. Skills are upgraded (or downgraded) and the types of qualification required are changing.

Changes in job profiles

Job profiles change rather quickly under the current job environments: one has to consider the modes in which work is organised, the characteristics of the enterprise, the methods of production and the working conditions. This realisation led to the formulation of the objective of the EUROTECNET Programme: to take account of the current and future technological changes and their impact on employment, work and necessary qualifications and skills.

The factors influencing jobs and job profiles are numerous. These may be directly linked to the world of employment and production or relate more generally to social and cultural developments, but also to changes in legislation and culture.

These factors may be identified for instance by changes in the technological field - the appearance of new materials, new tools and machinery, changes in production and working methods, new assembly procedures, new methods of maintenance and repair or in the socio-economic field - changes in consumer behaviour, changes in legislation, changes in the environment, developments in the markets and prices, organisational changes.

These issues were raised at the conferences in Spain and Portugal.

Background and "operational" definition (content description) of key/core competencies

The increasing internationalisation of the economy, the profound market changes and the ongoing technological change constituted major challenges for those enterprises which successively adopted new approaches in order to meet these challenges and to stay competitive:

1. a technology-centred approach through the application of computer-aided technologies and their integration in enterprise-networks. This approach presented serious inconvenience due to the high implementation costs of these systems which often were designed top down, and further due to the lack of preparation (in terms of competencies) of the workforce to manage those complex systems;

2. a radical change in design of organisational structures and processes.
   This change was and still is characterised by automation and work intensification, by a reduction in repetitive work and simple work activities, customer-oriented and diversified production, higher degrees of autonomy from the employees/workers in carrying out their relevant tasks by establishing bottom-up processes (instead of long-term strategic top-down planning) through transferring competency and responsibility to their levels within the operational structure of the enterprise. Emphasis here laid stress on persons dealing with technology in changing work and market environments.

Two main consequences result from this radical change: a new management attitude and the need for new (additional) competencies of workers and employees.

The human resources and their working potential have become the decisive factor in competition and for the success of the enterprise, being the source of creativity and innovation. This means that it is no longer the sole investment in new technologies, but rather the intelligent application of technologies as well as new ideas for products, services and efficient work processes which constitute the decisive advantages in competition and success.

On the level of workers/employees, these shifts and changes result in a combination of previously divided or separated individual stages of production and processes. More and more tasks are being combined and turned into more comprehensive occupational profiles which raises the occupational requirements. Entry requirements tend to become increasingly similar although certain specialised and occupational specific characteristics are likely to remain.

As a result of these changes and chosen approaches, there is the clear need for a new way of looking at competencies. What is required today are workers/employees having **core competencies**.

It is difficult to give a European-wide definition of this concept because one has to respect the different terms used in the Member States and their different approaches towards these competencies.

A distinction is made between technical, methodological, social and behaviourist competencies, although they have to be combined in a holistic way and not separately (this also determines the methodology used to acquire and develop them).

1. Technical competencies
   Besides all that workers/employees are expected to master in electronic data processing and related systems, there is a growing importance of computerised planning, process, control and workplace systems with (horizontal) networking. This results in a stronger interconnection of functional areas previously isolated and requires from the individual additional knowledge in adjoining professions, structures and processes in the enterprise to allow all workers/employees to be more generally responsible in the performance of their daily work.

2. Methodological competencies
   The proactive mental modelling of production processes becomes a necessity as machine operation is more and more performed via screen and keyboard. This means that the operators need cognitive abilities which enable them to deal with the abstract ways of communication by screen and keyboard.
   Due to the integration of functions and the flattening of hierarchies, areas of responsibility move downwards. This implies the need and ability to think and decide, in a holistic context. Developing learning capacities occupies a central place.

3. Social competencies
   Workers/employees must be able to work much more closely and directly with colleagues and other occupational groups. Decision-making at work require effective means of communication both with colleagues and managers in different parts of the enterprise. It requires adequate language skills and also the motivation to discuss working issues with others. New ways of cooperation (for instance within autonomous working groups) need similar competencies.

4. "Behaviourist" competencies
   These competencies relate to attitude, behaviour and values, such as work ethics, respect of the economic goals of the enterprise, acceptance of self-responsibility, etc. and are part of the three former mentioned types of competencies.

SMEs

High Performance Work and Learning in SMEs in Europe

In discussing strategies for effective work and learning in SMEs in Europe a number of points must first be made:

1. SMEs in Europe are not delivering on jobs, productivity or innovation: *"Europe is bad at building small businesses. In the USA, SMEs are providing the backbone of growth and in output and employment. This has not occurred in Europe. There is a much slower rate of small business start-ups. Bureaucracy and regulation in the European Union penalises small firms proportionally more than larger firms."* Professor Douglas North, joint winner of the Nobel Prize for Economics, April 1994.

2. High performance, work and learning practices relate to some 5 % or less of the total.

3. There is a real problem with transfer and multiplication of best practice.

Accordingly, whereas there is much exciting and innovative development taking place which deserves to be highlighted and acknowledged, the main challenge now lies in resolving the problem of transfer, of translating knowledge into know-how, of removing attitudinal and learning blockages, and of making the bridge between acquisition and application of competencies.

Large Problems for Small Enterprises

Despite the political efforts at the level of Member State or the European Union, there has been little real change in SME behaviour concerning training and HRD. Research into the activities of SMEs in comparison to large firms shows very little activity and very little financial investment in training.

There are some clear reasons for this, including the lack of SME management competency in HR matters. SMEs have traditionally turned to the labour market for a supply of trained staff. SMEs also tend to regard training as a privilege for managers or as a special reward for other workers and one which is given only if the financial situation allows for this 'luxury'.

But even where these reasons are not totally valid there is a characteristic set of problems which make it difficult for SMEs to establish proper training measures:

1. SMEs lack the capacity to define training needs in the context of enterprise modernisation.

2. SMEs usually lack the capacity to plan, organise and implement training, and for many, it would be almost impossible to develop this capacity.

3. The external training market does not meet the specific needs of SMEs. The provision is of a general nature which requires too much time away from the job and great difficulty in the transfer of such learning. To produce customised courses for a few employees is simply too expensive. Hence the justified complaint of SMEs is that the delivery of training by training institutes is of little or no use for their needs.

4. The financial margins within which SMEs operate, coupled with the small number of employees, make it difficult to release employees for ex-company training.

The Training Institute

Development in the Work and Learning field have profound implications for the providers of training.
In many respects the total infrastructure requires reformation together with paradigmatic shifts in relation to partnerships and networking.

SMEs do not have educational or training problems. Rather they have difficulties in areas such as market share, quality, productivity, technology etc. Training may well have a part to play in the alleviation of the problem, but only if other issues are first or simultaneously addressed.

For example analysis will likely show that shortcomings exist in the organisation of work, the way in which the technology is used, the setting of standards, logistical arrangements, control mechanisms etc. If all of these re-organisational issues are not fully tackled in a cooperative and transparent manner, then the contribution of any training is seriously diminished. In fact, it is now known that the most effective learning would take place through the experience of resolving all of these issues, particularly if the exercise is approached in a pedagogically sound manner e.g. according to the principles of activity regulated learning theory.

We can see that if the training institute does not possess the consultancy skills required for such an integrated approach, its work will, at best, be sub-optimal.
These developments will call for a new type of networking, in short a new infrastructure where the various disciplines work on a highly cooperative and interactive basis - technologists, production engineers, ergonomists, OD and IR specialists etc. with the training experts, all working in concert. In effect, it means a changed role for the trainer to that of business/HR consultant. For the training institute, a new partnership with the other "members" of the SME's support orchestra is dictated.
SMEs do not have their own training capacity. If they are to move towards integrated learning and working, they will require a high level of external professional assistance. Existing training institutions have enormous problems in selling their services and products to SMEs because it is claimed that the training delivered by external training institutions does not meet their real training needs. SMEs represent, therefore, a potential market, which is, as yet, untapped. This market cannot, however, be opened without radical changes in the relationship between the training provider and the SME.
For SMEs, the inter-relationship between the organisation of learning and the organisation of work also means the inter-relationship between training providers and the enterprise. The term 'Learning Organisation' in this case, not only defines the restructuring of an enterprise to develop its abilities to learn, but includes an innovative cooperation between the training institution and the enterprise. The whole of this systematic cooperation creates another model of the Learning Organisation. This new entity comprising an enterprise and a training institution will involve cooperation in carrying out many tasks.

This new approach to the qualification of workers has many implications for the training systems and training professionals.

For trainers it implies a new role: the trainer is no longer merely a transmitter of knowledge and know-how, but rather the one who arranges the content and pace of the training and learning process; who creates the conditions which will make learning effective and ensures that the trainee is not just a passive learner but rather an active self trainer.

We are at a stage in which there is large scale agreement on the need for redesigning training organisations and connecting training to work and to the labour market. But we are still far from starting the necessary process of developing new curricula to train the people who will be the pillars of this new structure.

New methods and strategies for SME development was the theme for the German conference. The needs of SMEs was also stressed at Luxembourg and Ireland.

Partnerships - Industry - Training Institutes - Social Partners

There is a gradual increase in the skill levels demanded of job seekers and in the great difficulties encountered by those who have failed to complete initial training. The labour market situation in all the member states of the Community shows that the highest unemployment rates and the persistence of high levels of long-term unemployment are linked to the mismatch between skill needs of firms and the skills available in the workforce. It is those countries that have been the least prepared for and open to qualitative change that are now experiencing the worst mismatches between supply and demand for jobs, accompanied by persistent exclusion from the labour market of under skilled groups and by a consequent upswing in long-term unemployment. The capacity to develop lifelong learning systems, continuing education and training, particularly at the workplace, has therefore a central role to play in the strategy for the future and in the development of an active society able to cope with the economic, technological, cultural and social changes of the 1990s and beyond and to face competition, from all parts of the world.

Technology is changing at such a rapid pace that now more than ever workers are needed who can problem-solve, think critically and adapt to rapid changes in technology. Good attitudes alone in employees will not suffice.

The whole concept of "continuous quality improvement" is also very important. The idea behind this is that you do it right the first time, and ensure that you continually attempt to improve on your processes.

The lasting quality and effectiveness of a system depend on its adaptability. How flexible and innovative is the system ?

Can it bring about the adjustments expected of it at this time ? This question is posed on two levels:

- quantitatively, with regard to the availability of training positions to satisfy both the needs of the employment system and the demand of young people/adults; and
- qualitatively, relative to changing attitudes and requirements from the corporate and individual perspectives as a result of structural changes, technological and organisational innovations, as well as changing social values and personal lifestyles.

The concept of partnership between the world of vocational education and training and the world of industry has a long history. Partnership has taken many forms, notably apprenticeship and the alternance approach in Europe. A new phenomenon is our realisation of the need to apply the concept of partnership between industry and the vocational education and training system far more broadly.

Vocational education and training approaches which combine theoretical learning with practical workplace application need to be extended to all, or most, levels of training, right up

to that of the university. To bridge the gap between education and work, both educators and employers need to be actively and jointly involved with education and training.

There is a growing acknowledgement that central to a world-class workforce is a much wider knowledge and skills base than we achieve at present. This implies greater participation in post-compulsory higher technical education and training, at intermediate level, below that of university. Yet, currently, in most countries - though not all, Germany being one exception, and Denmark another - higher status is placed on academic education and the university or college-bound student than on technical/vocational education and the work-bound student. At issue is the reality that academic education is highly valued, while technical/vocational education is undervalued. Recruitment to technical training suffers from the fact that the playing-field is not level as between technical and academic education. The status and rewards for a student pursuing technical/vocational courses or programmes need to be improved if a better balance is to be established.

A new concern with quality has now become widespread in all sectors of Western economies and is beginning to reach the education and training systems.
The demand for higher standards and changes in industrial processes are leading to industry placing higher value on the so-called foundation or general skills or competencies. Higher quality also calls for greater mastery of basic subjects and higher order thinking skills, as well as process skills such as communication and teamwork, the so called key/core qualification. As the speed of change increases, new jobs and skills profiles are evolving faster. Attention to quality requires a capacity to respond faster to change. For employers this means faster processes of consultation with education and training providers; for providers, it calls for a capability to respond rapidly to new workforce training needs. For both, it implies a need to rethink how initial training is, or should be, linked to continuing training, i.e. life-long learning, and how participation in the latter should be related to career advancement.

Vocational education and training cannot remain purely a matter of national or regional concern, nor the preserve of education and training establishments. Input from industry is also essential. Those countries where technical and vocational training are organised with the active help of industry are visibly more successful than those where this is not the case.
Industry can help to anticipate the knowledge base which will be needed in the years ahead, and press for it to be put into position. More effort must be devoted to preparing people for strategic capability. Many of tomorrow's jobs cannot be envisaged today.
However, of course partnership is not an end in itself, but a means to achieve goals - to obtain results better than those achieved by vocational education and training or industry working alone.

To achieve results:

- each side must have a clear understanding of the nature and primary functions of the other
- each should integrate in their institutional mission and plan a strategy for cooperation with each other.

We are in an era when solutions to developing and sustaining a quality world class workforce depend increasingly on partnership between education and training providers and industry;

and between them and government, at all levels. Partnerships provide the means for linking the classroom and the workplace, for diversifying provision, for speeding up our response to changing needs, and for developing links between initial and continuing training.

Basic requirements are structures and agreements that clarify the roles and responsibilities at each level, so that partnerships can form and function smoothly. All partners should be involved in creating the conditions, in terms of financial and staff support, for effective partnership models. Governments must play their part by setting the right climate and encouraging partnership development. The development of a consensus about the importance of training in areas or sectors which lack it for historical reasons is a necessary and long-term task also. So is the development of a system of training, both initial and continuing, and of certifying it, which reflects the characteristics outlined here.

Firms must participate in sectorial groups concerned with the quality and content of training, through whatever bodies or structures are formed at national, regional or sectorial levels for this purpose. At the local level, they should help schools, colleges and training bodies to train students on up-to-date equipment, e.g. by offering access to such machines in their plant or by placing them in the technical training institution itself. They should accept teachers, especially those responsible for career guidance in high schools, into their firms on placements, to help them learn about the reality of modern industry.

The route to a quality work-force includes placing more emphasis on progression; on giving greater equality of status to the technical-vocational pathways; and on paying more attention to the needs of those who now fail to become qualified. These priorities, and the need to pay more regard to quality in its many different forms, illustrate well the need for partnership action, since they are not matters which the school or college system can carry out alone.

Special attention should be focused on the training needs of small and medium-sized firms. The special structures and procedures required to engage them in the training and retraining process should be developed. Partnerships was the main focus of the conference in The Netherlands and Ireland.

The Six Principles Guiding Vocational Training

For all training institutes and training providers in Europe, the response to industry needs should be guided by a number of integrated and interdependent principles.

Place skills development within a comprehensive improvement strategy

Manufacturing improvement is complex. Firms attempt interdependent and often simultaneous development of their design and production technologies, worker skills, work organisation, market focus, customer and supplier relationships, and management practices. Programmes focused only on training may fail. Education and training programs should integrate skills development into a comprehensive integrated strategy.

Strive for high performance work organisation

High performance work organisations fully use workers' skills, involving them in the planning and implementation of changes at the firm. The public and private sectors will benefit little from investments in education and training unless new skills are deployed in firms where the organisation of work enhances worker participation and uses skills effectively. Workers and managers are far more likely to seek and apply higher skills if they have direct responsibility for organisational performance and customer satisfaction and can act on that responsibility. For the modernising firm, worker participation is a key business strategy. Training providers should help firms link training to work reorganisation. New modes of work must increase the capability and commitment of workers and help build formal and informal learning systems within firms.

Make learning, not just training, the goal

As the pace of economic and technological change accelerates, the ability of workers and enterprises to learn and adapt becomes a core element in the global competition among corporations and national economies. Manufacturing enterprises acquire much of the new products, and plan, implement, and optimise new design and production technologies and methods. SMEs strengthen regional economies when their cultures, work processes, and structures capture knowledge and encourage collaborative learning.

Embed skill enhancement in work processes

Workers learn new skills best on the job. Work provides them with a context that links application of new knowledge to work interests and career goals. On-the-job training should be structured to enhance the skills and knowledge of workers performing modern work processes. Education and training should be embedded in the new design and process technologies used by SMEs. SMEs will gain most from their limited resources when they invest in work-based learning. SMEs generally avoid elaborate, formal training systems but will use ones that allow workers to learn as they produce.

Promote the consortium approach by groups of firms committed to joint learning

The great challenge of developing skills for industrial modernisation dictates a consortium strategy. There is really no other way to enhance the skills of workers in SMEs. New public investments in the skills of the current industrial workforce should, like the rest of the modernisation system, promote inter-firm co-operation. Consortium approaches use finite funds efficiently, aggregate demand of modernising firms, enhance their market power, promote virtuous peer pressure, influence and support the innovations of individual lead companies, and harvest best practice from team work.

Integrate the active participation of the Social Partners

Along with the convergence of interest between management and trade unions in ensuring survival in the global market, both sides have a great deal to contribute to the vocational training debate. It is the collective competence of an enterprise which gives it its competitive position and so it becomes an imperative for success and effectiveness to integrate the active participation of the social partners in the identification, planning, organisation and evaluation of all vocational education and training.

The remaining challenges

What can be reasonably concluded is that the biggest challenge is for the organisation of learning for the acquisition of the new competencies for general workers. We do not yet know how to train our clients to meet these needs. We are adopting trial and error approaches. We are in a reactive mode, responding to industry's needs after the event, discussing the new multi-skilling, polyvalent, key/core qualifications but having no clear plan on how or in what definitive way the new skills will be acquired. Even as we move towards the learning organisation with its radical implications for change in work organisation, training methodology and qualifications structures, we are not at all really ready to bring about the development of the new qualifications.

Certainly not in the transferable professional way to a predetermined standard, in a transparent methodology and to a certifiable or demonstrable application.

We must be able to clearly articulate how the new competencies are acquired. We must know the concepts, methods and strategies for the effective transfer of learning.
We need to develop our learning theories into practical instruments, we need speedy and reliable research, we clearly need a new reliable Hawthorne - here in Europe 60 years on.

We must be able to show - to prove that the new concepts are significantly more economically efficient than the traditional models.

We must at least demonstrate to our clients, to the relevant people and to industry what is possible, what it is that people are capable of achieving.

We must face up to our difficulties and problems and realise that the need for innovation in training is growing perhaps even faster than technological advance.

The standard of living and the quality of working life of our fellow human beings is at stake. It is an awesome responsibility. There is so much to be done and so little time available, but it can be done if there is a spirit of enthusiasm, determination and cooperation. Socrates said that a properly articulated problem was already halfway solved. It we accept this, then perhaps we are also half way to properly covering the demands of training.

The Vocational Education and Training systems must now recognise the needs of industry and convert this to the needs of trainees.

In doing so, the VET systems have a responsibility to give clear professional and active leadership and not to slavishly accept the often short term reactive needs articulated by the world of capital.

It must expand its own paradigms, its value systems, to take account of the new demands and, in so doing, greatly elaborate and expand the definitions and meanings to take account of how a learning enterprise or learning organisation should function.

Finally, the vocational training system must ensure that its own organisations are also open, learning ones, where the weak can become strong and the strong can use their talents to the full.

3.

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